

- Fig. 4.* Tangential section of *Clathrodictyon laxum*, Nich., from the Corniferous Limestone, Ontario.
Fig. 5. Vertical section of the same.
Fig. 6. Tangential section of *Clathrodictyon retiforme*, Nich. & Mur. sp., from the Hamilton formation of Canada.
Fig. 7. Vertical section of the same. The right-hand half of the portion figured cuts through one of the astrorhizal cylinders near its centre; the left-hand portion traverses an adjoining cylinder near its periphery.
Fig. 8. Portion of the surface of the same, of the natural size.
Fig. 9. Part of the surface of *Stromatoporella? tuberculata*, Nich., enlarged about twice. Corniferous Limestone, Ontario.
Fig. 10. Tangential section of the same.
Fig. 11. Vertical section of the same.

II.—*Notes on a Species of Entalophora from the Neocomian Clay of Lincolnshire.* By G. R. VINE.

IN his paper on the Closure of the Cyclostomatous Bryozoa *, Mr. A. W. Waters refers to several peculiarities of the cell-coverings of Palæozoic species. In speaking of what he called *Entalophora rugosa*, d'Orb., from Naples, Mr. Waters says: "The most usual position for the calcareous plate which closes the tube would seem to be about the point where the zoöcial tube rises free from the zoarium" (p. 401). Remarking on the closure of the aperture in Carboniferous *Polyporæ* and *Fenestellæ*, the author refers to and quotes a previous observation, made as far back as 1878, wherein he says: "In the Cyclostomata the cells are often after a time closed by a diaphragm, in most cases some little distance down the tube" †. In all these observations I have been able to confirm Mr. Waters's statements; but there is a very great difference between the closure of Palæozoic and recent Cyclostomata.

It is not, however, for the purpose of controverting, or even of further commenting on Mr. Waters's views that I send you the present notes, but to furnish new material for the student of our fossil Polyzoa.

Through the kindness of Mr. H. Wallis Kew, of Louth, I have been able to examine in detail specimens of *Entalophora* from the Neocomian Clay at Donington-on-Bain near Louth, in Lincolnshire. Before receiving the present examples I was altogether unacquainted with species of Polyzoa from this locality, and I have searched in vain for previous records of species found in the Lincolnshire horizon. I have compared

* Journ. Linn. Soc. Zool. vol. xvii. 1884, p. 400.

† Manch. Geol. Soc. Tr. 1878, p. 2 of paper.

the fossil with well-known types of *Entalophora* from other localities, such as the Lower Greensand or Faringdon species, but I cannot identify it as belonging to any of our British types. Certainly we have in our rocks a form which I have previously recognized as *E. gracilis*, Goldf.*, but the identification is founded upon the well-known figure of Goldfuss. In Hagenow's Maestricht Bryozoa the author figures forms of *Ceriopora gracilis*, Goldf., which he names *Escharites gracilis* and *E. distans*. The characters of the cells and the arrangement of the same are different in the two figures; but in the Lincolnshire fossils both the features of the figures of Hagenow are combined in one of the specimens at least—the cell-arrangement at the bottom part of the stem like *E. gracilis*, while the top part is like *E. distans*. There is also a striking resemblance between the Lincolnshire fossil and examples of *Entalophora cenomana*, d'Orb., from Mans. I shall therefore characterize the British examples as follows:—

Entalophora gracilis, Goldf., var. — ?

Zoarium branching, stem about one eighth of an inch in thickness, but the width increases slightly at the node. *Zoecia* near the base arranged rather evenly in circlets; but on the upper part of the stem they are very irregular and distant. Cells certainly tubular, but the front or area is flattened, giving to the fossil a very peculiar or *Eschara*-like feature, and coarsely punctate. *Orifice* orbicular, semiorbicular, or oval, produced or depressed, but with a thick peristome. *Closure* unique (?).

Horizon. Neocomian.

Locality. Donington-on-Bain, Lincolnshire.

The closure of this peculiar fossil is very distinct and of two types:—1st, closure in the throat of the tube, that is to say a little distance from the perfect and extended peristome, as already noticed by Mr. Waters in his description of species; 2nd, a closure over a similar position in the tube, but where the front wall of the cell is curved inwards and covering the whole throat of the tube. In the latter case there is no elongation of the tube on the front side, but on the back the tube is prolonged beyond the closure. Both of these features appear to be normal and characteristic of certain cells, and the calcareous lids in both cases are punctate, but without any central or other opening than those referred to. I cannot find any enlarged cells in my specimens, and I therefore suppose that the function of these closed cells is for reproductive purposes.

* 4th B. A. Rep. Fossil Polyzoa, 1883. (Goldf. tab. x. fig. 11.)

The peristomes of the cells are also perforated, but the "tubules" in these are more elongate than those of the area.

In one of my specimens the whole length of the cell is exposed on the inner side, and the ends of the "tubules" or porous openings are also exposed on the inner walls, for these seem to have served some special purpose in the economy of the growing cell*.

Although rather familiar with the closures of Palæozoic, Jurassic, and recent Cyclostomata, I have never noticed similar features to those described above. As we are as yet only in the infancy of our knowledge respecting the developmental features of Cyclostomatous Polyzoa of past ages, all careful observations bearing on this point are valuable, especially because, as Mr. Waters says, "further examination [of species] enables me to state that the position and the character of this diaphragm may be employed as a useful specific character"†.

III.—*The Morphology of Antedon rosacea*. By P. HERBERT CARPENTER, D.Sc., F.R.S., F.L.S., Assistant Master at Eton College.

THE 'Traité d'Anatomie Comparée Pratique' by Messrs. Vogt and Yung, which is now in course of publication both in French and in German, is described in the authors' prospectus as designed to aid the student in making an "étude approfondie" of certain selected zoological types, their structure being investigated "couche par couche, organe par organe."

The 'Traité' "sera composé d'une série de monographies anatomiques des types, résumant l'organisation animale toute entière." This is clearly a very high standard; for in the present state of zoological science a monographic description of any known type can only be properly worked out by a very detailed process of investigation, requiring the combination of various methods of research and an intimate acquaintance with the literature of the subject. In the case of those animals which possess a hard skeleton its relation to the soft parts must be made the subject of very careful investigation. The mere cutting of thin sections for histological examination is not a sufficient means of research; but the comparative osteology and the macroscopic characters of the

* See Busk, *Crag Polyzoa*, p. 122, and A. W. Waters, "On the Occurrence of Recent Heteropora," *Journ. Roy. Micr. Soc.* vol. ii. p. 390 (1879).

† *Journ. Linn. Soc., Zool.* vol. xvii. p. 401.